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Flying Operations

B-2--OPERATIONS PROCEDURES

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This volume implements AFPD 11-2, *Aircraft Rules and Procedures*; AFPD 11-4, *Aviation Service;* and AFI 11-202V3, *General Flight Rules*. It applies to all B-2 units. This volume does not apply to Air Force Reserve Command (AFRC) units and members. This volume does not apply to the Air National Guard (ANG). MAJCOMs/DRUs/FOAs are to forward proposed MAJCOM/DRU/FOA-level supplements to this volume to HQ AFFSA/XOF, through HQ ACC/DOTO, for approval prior to publication IAW AFPD 11-2. Copies of MAJCOM/DRU/FOA-level supplements, after approved and published, will be provided by the issuing MAJCOM/DRU/FOA to HQ AFFSA/XOF, HQ ACC/DOTO, and the user MAJCOM/DRU/FOA offices of primary responsibility. Field units below MAJCOM/DRU/FOA level will forward copies of their supplements to this volume to their parent MAJCOM/DRU/FOA office of primary responsibility for post publication review. **NOTE:** The terms Direct Reporting Unit (DRU) and Field Operating Agency (FOA) as used in this paragraph refer only to those DRUs/FOAs that report directly to HQ USAF. When guidance in this volume duplicates, changes or conflicts with already published information contained in other ACC documents, the material in this volume takes precedence. Keep supplements current by complying with AFI 33-360V1, *Publications Management Program*. See paragraph **1.5.** of this volume for guidance on submitting comments and suggesting improvements to this volume.

This volume contains references to the following field (subordinate level) publications and forms which, until converted to departmental level publications and forms, may be obtained from the respective MAJCOM publications office:

Publications: ACCR 51-18

SUMMARY OF REVISIONS

This change incorporates interim change (IC) 2000-1. A bar (|) indicates revisions from the previous edition. Modifies Paragraph **2.5.** (**NOTE**) to update mission planning guidance. Adds Paragraph **3.6.10.1.** guidance on 30 second MITO spacing. Modifies Paragraph **5.3.4.** to include procedures for assessing

weapons status via the MMS. Clarifies guidance in Paragraph **6.1.4.** with respect to taxiing with nose wheel steering malfunctions.

Chapter 1

INTRODUCTION

1.1. Aircrew Responsibility. This volume, in conjunction with other governing directives, outlines those procedures applicable to the operation of B-2 aircraft under most circumstances, but is not to be used as a substitute for sound judgment or common sense. Operations or procedures not specifically addressed may be accomplished if they enhance safe, effective mission accomplishment.

1.2. Deviations. Deviations from these procedures require specific approval of the HQ ACC/DO unless an urgent requirement or an aircraft emergency dictates otherwise, in which case the mission commander will take the appropriate action to safely recover the aircraft.

1.3. References. This volume, in conjunction with T.O. 1B-2A-1, *Flight Manual;* T.O. 1B-2A-1-2, *Supplemental Flight Manual Systems Operations;* T.O 1B-2A-1-3, *Supplemental Flight Manual;* T.O. 1B-2A-25-1, *Nuclear Bomb Basic Information;* T.O. 1B-2A-25-2, *Nuclear Bomb Delivery Operating Procedures;* T.O. 1B-2A-34-2-1, *Nonnuclear Weapons Delivery Manual;* AFTTP 3-1V23, *B-2 Tactical Employment;* ACCR 51-18, *Bombing/Navigation/AGM Training and Use of the ACC TTR System;* and AFI 11-214, *Aircrew, Weapons Director, and Terminal Attack Controller Procedures for Air Operations*; are the primary references for B-2A operating procedures. Training units may develop phase manuals from the procedures contained in these documents. Phase manuals may be used to augment initial and mission qualification training at operational units. Phase manuals may expand these basic procedures--in no case will they be less restrictive.

1.4. Waivers. Waiver requests will be forwarded to HQ ACC/DOT for approval. Units subordinate to a NAF will provide their NAF/DO/OV with an informational copy. Waivers, if approved, will be issued for a maximum of one year from the effective date.

1.5. Processing Changes:

1.5.1. Recommendations for changes to this volume will be submitted through HQ ACC/DOT to HQ ACC/DO on AF Form 847, **Recommendation for Change of Publication**.

1.5.2. HQ ACC/DO will:

1.5.2.1. Process recommendation for change.

1.5.2.2. Forward recommended changes to HQ AFFSA/XO for AF/XO approval.

1.5.2.3. Address time sensitive changes by immediate action message.

Chapter 2

MISSION PLANNING

2.1. Flight Manuals. Crewmembers are personally responsible for maintaining adequate knowledge of system operations, normal, and emergency procedures.

2.2. Checklists. Each crewmember will have the appropriate checklists for the respective flight.

2.3. Local Aircrew Aids. Aircrew aids will include the following:

2.3.1. Briefing guides.

2.3.2. Local VHF/UHF/HF channelization and airfield NORDO procedures.

2.3.3. Impoundment procedures.

2.3.4. Fuel dump/weapon jettison areas.

2.3.5. Divert/alternate base information.

2.3.6. Recovery with ferried, retained, or hung weapons on board.

2.3.7. Other information as deemed necessary by the unit. Examples include stereo flight plans, ERCC/taxiback procedures, local training areas/MOAs, and maintenance brevity codes.

2.4. Mission Planning Responsibility. Individual crewmembers and the unit operations and intelligence functions jointly share the responsibility for mission planning.

2.5. Mission Planning Procedures. Accomplish flight planning to insure safe accomplishment of all phases of flight. As a minimum, mission planning includes takeoff procedures, enroute procedures, planned simulated/actual threats, target study/weapons delivery, air refueling, fuel requirements, formation procedures/briefing (if applicable), chart preparation and landing procedures. **NOTE:** Unit-designated target study officers (TSO) or B-2 IPs certified by 509 OSS/OSKW will accomplish target study. Prior to giving target study, TSO's and qualified B-2 IPs must verify (according to local procedures outlined in **Chapter 8**) they have the most current information on the routes and targets to be briefed.

NOTE:

Unit-designated target study officers (TSO) or B-2 IPs certified by 509 OSS/OST will accomplish target study. Prior to giving target study, TSO's and qualified B-2 IPs must verify (according to local procedures outlined in **Chapter 8**) they have the most current information on the routes and targets to be briefed.

2.5.1. **Planning/Preparation Requirements:**

2.5.1.1. The 509th OSS will maintain mission planning facilities complete with all flight planning information and materials. Maintain appropriate weather information and climatalogical data for flight planning. An aircraft modification status board or its equivalent will be readily accessible in each mission planning area.

2.5.1.2. Unit staff will provide crewmembers a minimum of eight hours to accomplish mission planning and mission briefing. This period may be reduced proportional to the amount of staff and

computer generated mission data available; however, in no case will less than two hours be allocated to allow a comprehensive mission data review and complete mission briefing. Both crewmembers must be present for mission planning. Unit staff will ensure other activities, such as recurring academic training, training device periods, additional duties, etc., will not interfere with time allotted for mission planning and mission briefing. **NOTE:** This is not intended to limit mission rehearsal trainers.

2.5.1.2.1. The FTU may adjust instructor mission planning schedules when necessary to meet training requirements. Whenever possible, provide the full eight hours.

2.5.1.2.2. Instructors and supervisors will ensure mission planning meets all training objectives and quality of mission preparation is not compromised.

2.5.2. **Crew Mission Planning:**

2.5.2.1. The mission commander will ensure mission planning is completed in sufficient detail for the planned mission, review currencies for both crewmembers, and review aircraft restrictions for each activity planned. An alternate mission will be planned to include activity to be accomplished in the event of equipment failure or adverse weather factors. The alternate mission should parallel as closely as possible the original mission.

2.5.2.2. Mission commanders are ultimately responsible for the accuracy and completeness of all the mission data. They must ensure crew substitutions are made in sufficient time for the substitute to be thoroughly briefed and be familiar with the applicable mission data.

2.5.2.3. When using unit prepared mission packages, the preparing staff agency must provide complete and accurate data. The preparing agency briefs aircrews on these packages, and accomplishes staff-supervised study and mission planning. Accomplish all the requirements of 2.5.2.1 above.

2.5.3. **Briefing/Debriefing.** The mission commander will conduct a formal mission briefing for all missions. If, due to mission requirements or as a result of a substitution, the mission briefing must be delayed until the day of the flight, adequate time must be provided for this brief before the pre-takeoff briefing.

2.5.3.1. The briefing will include all scheduled activities and requirements in **Attachment 2** from takeoff through mission termination. Review charts for accuracy if not accomplished during target study. A thorough brief of the recovery base, to include low visibility approach procedures will be accomplished. Items should be covered in sufficient detail so that only a short review is required in flight.

2.5.3.2. Mission commanders or IPs designated in writing by the squadron commander may certify their own briefings.

2.5.3.3. All crews involved in a formation flight must attend a formation briefing. The basic guide is in **Attachment 3**. The unit may augment the guide as necessary.

2.5.3.4. Units that fly missions not covered by this regulation or its attachments (for example, OT&E weapons delivery profiles) will develop and maintain briefing guides in **Chapter 8** of this volume for those missions.

2.5.4. **Pretakeoff Briefing.** The mission commander will conduct a pretakeoff briefing in accordance with **Chapter 8** of this volume. Both crewmembers must attend the weather briefing. Items to

be reviewed include known mission changes, adverse weather conditions, approach procedures, and alternates.

2.5.4.1. If the interval from the initial briefing to takeoff exceeds 72 hours, a complete review and re-brief must be accomplished.

2.5.4.2. The mission commander's signature on the DD Form 175, **Military Flight Plan,** indicates all briefing items were briefed/accomplished.

2.5.5. **Chart Preparation:**

2.5.5.1. **Local Area Charts.** A local area chart is not required if the local in-flight guide includes controlled bailout areas and provides sufficient detail of the local area to remain within assigned training areas.

2.5.5.2. **Navigation Route Chart.** For overland operational training flights, a current chart of sufficient scale providing navigation and terrain/obstacle avoidance information will be carried. Sufficient navigational information will be included to ensure successful mission accomplishment. Annotate a minimum safe altitude (MSA) or route abort altitude (RAA) on all maps. Update charts using the Chart Update Manual (CHUM). Highlight all man-made obstacles above the planned flight altitude.

Chapter 3

NORMAL OPERATING PROCEDURES

3.1. Preflight. For normal training missions, preflight should start one hour thirty minutes prior to scheduled takeoff. Units may specify planning factors for HHQ/unusual mission circumstances and buddy preflights in local **Chapter 8**.

3.1.1. **Comm Kit/Classified.** Ensure all FLIP and classified materials are present, current, and complete.

3.2. Taxi. Minimum taxi interval is 500 feet in trail.

3.2.1. End of Runway Checks.

3.2.2. Crew will confirm brakes are set and radar is not transmitting prior to ground checks. Ground crew will confirm completion of checks, and aircraft is cleared to taxi. Verbal acknowledgment from the aircrew is mandatory.

3.2.3. When ice and/or snow are present, the Airfield Manager will ensure that the hangar area and planned taxi route have been checked for safe conditions. Do not taxi the aircraft with a reported RCR of 6 or less anywhere on the taxi route.

3.3. Takeoff/Departure:

3.3.1. Do not takeoff if the following conditions exist:

3.3.1.1. If the RCR is reported less than 9.

3.3.1.2. Standing or pooled water on the runway.

3.3.1.3. On training missions, if the computed takeoff roll exceeds 80% of the available runway (waiverable by 509 OG/CC).

3.3.1.4. Any attitude indicator, heading indicator, or pitot static instrument inoperative.

3.3.1.5. One or more engines inoperative (peacetime) from start of takeoff roll.

NOTE:

During emergency evacuations, launch of aircraft with one or more engines inoperative may be accomplished at the discretion of the wing commander or when specifically directed by higher headquarters. At no time will launch be directed when computed takeoff distance exceeds 95 percent of runway available.

3.3.2. Intersection takeoffs are not authorized without 509 OG/CC approval. Intersection must provide at least 10,000 feet of usable runway.

3.4. Air Refueling. Air refueling operations are authorized along published, random or special tracks/anchors. In addition, enroute refueling may be conducted between aircraft comprising a formation. During these operations, it is the responsibility of the tanker aircrew to remain within the protected lateral, longitudinal and vertical airspace.

3.5. Low Level. The B-2 is restricted to no lower than 1,000 feet AGL on a published low altitude route, in a MOA, or restricted area.

3.5.1. See ACCR 51-18 for low level, weapon delivery (including range and TTR activity), and navigation training procedures, as well as procedures for carrying munitions.

3.5.2. Follow additional procedures defined in **Chapter 8**.

3.6. Formation:

3.6.1. **Concept.** Formation offers mutual support provided it does not unduly interfere with mission accomplishment. Multi-ship formations operate more efficiently in key areas of employment ranging from air refueling operations to overseas deployment and daily training.

3.6.1.1. B-2 formation procedures are currently limited to three-ship operations.

3.6.2. **Safety.** Formation is a potentially hazardous operation. Strict compliance with specific procedures is essential to the safe conduct of any training or combat mission. These procedures, however, cannot substitute for proper aircrew judgment during dynamic formation operations.

3.6.3. **Formation Flight:**

3.6.3.1. Formation flight is when more than one aircraft which, by prior arrangement between the aircrews, operate as a single entity with regard to navigation and position reporting. Separation between aircraft within the formation is the responsibility of the flight leader and the crewmembers of other aircraft in the flight. This includes transition periods when aircraft within the formation are maneuvering to attain separation from each other to effect individual control and during joinup and split up.

3.6.3.1.1. A standard formation is one in which each wingman maintains a proximity of no more than one mile laterally or longitudinally and within 100 feet vertically for the flight leader.

3.6.3.1.2. Nonstandard formations are those operating under any of the following conditions (B-2s fall in this category):

3.6.3.1.2.1. When the flight leader has requested and ATC has approved other than standard formation dimensions.

3.6.3.1.2.2. When operating within an authorized altitude reservation (ALTRV) or under the provisions of a letter of agreement.

3.6.3.1.2.3. When operations are conducted in airspace specifically designed for special activity. **NOTE:** Indicate "Nonstandard" in the remarks section of the filed flight plan. Flight leaders must advise ATC upon initial contact, and each subsequent controller or controlling agency, of separation used. Advisories are not required when operating within an ALTRV or airspace specifically designed for formation flight activity.

3.6.3.2. **Formation Departure.** A formation departure is the departure of multiple aircraft at intervals of one minute or less which, by prior arrangement between the aircrews, operate as a single aircraft with regard to navigation and position reporting. The departure portion of the flight may terminate at a preplanned breakup point which may be located up to, but not beyond, the planned initial level off at cruise altitude. Formation requirements of para **3.6.3.1.** apply.

3.6.3.3. **Enroute Formation.** An enroute formation is two or more aircraft with the same intended route of flight, maintaining station-keeping operations by either visual and/or electronic means. Formation flight requirements of para **3.6.3.1.** apply.

3.6.3.3.1. **Radar Trail.** The radar trail position in level flight is one mile trail stacked up 500 feet from the preceding aircraft in formation. Radar trail formation, as flown by B-2s, is 'nonstandard' by FAA definition.

3.6.3.3.2. When flying nonstandard formation, advise ATC of the longitudinal, lateral, and/or vertical separation between flight lead and the last aircraft in formation so they can provide appropriate separation from other aircraft.

3.6.3.3.3. Should separation between the flight leader and other aircraft in the formation exceed ATC separation limitations or vary significantly from that reported to ARTCC for the nonstandard formation, the aircraft outside the formation limits will no longer be considered part or the formation. The pilot will inform the leader of his or position and request ATC provide individual control until reestablished in formation.

3.6.3.4. **Stream Formation.** A stream formation flight is defined as two or more aircraft (or flights of aircraft) operating along the same intended route of flight as individual aircraft with regard to navigation and position reporting. Separation between consecutive aircraft or flights should not be less than 30 seconds nor more than 3 minutes longitudinally and 3,000 feet vertically. Stream formation, as flown by B-2s, is also 'nonstandard' by FAA definition.

3.6.4. **Responsibilities:**

3.6.4.1. **Flight Lead Responsibilities.** The most qualified mission commanders will be designated as formation lead for operational missions.

3.6.4.1.1. Flight lead will be responsible for the safe and effective operation of the flight. The flight lead plans, briefs and debriefs the flight. Flight lead will ensure all aircraft are thoroughly briefed on all aspects of multiship formation flying to include aircraft spacing, rejoins, lost wingman procedures, air refueling and lead changes. He will be responsible for setting up the mission objectives, briefing, executing the plan of attack, and conducting a formal debriefing of the mission.

3.6.4.1.2. Formation discipline is essential for the safety and control of all formation flights. Formation integrity and discipline begin with the formation briefing. The leader must ensure that all aspects of the mission are clarified and understood. The integrity of a formation can only be maintained when the leader has complete knowledge and control of the actions of each flight member. The flight leader will provide the necessary execution instructions and analyze/debrief all mission events.

3.6.4.1.3. A good flight lead always recognizes the capabilities and limitations of his wingman. Although he may challenge his wingman to perform, he must never exceed their limits. Monitor the position of all wingman, especially during position changes. Make all radio calls clear and distinct. Confirm acknowledgment and repeat calls if necessary. Make all power and attitude adjustments in a smooth manner so wingman can follow the maneuver smoothly. Plan ahead and think for the formation. Above all, be predictable.

3.6.4.2. **Wingman Responsibilities.** Wingmen are responsible for executing the plan. The wingman should:

3.6.4.2.1. Complete the tasks assigned by the flight lead.

3.6.4.2.2. Maintain briefed formation position while deconflicting from the flight lead.

3.6.4.2.3. Keep the leader in visual and/or electronic contact at all times.

3.6.4.2.4. Anticipate corrections and plan ahead.

3.6.4.2.5. Monitor all aspects of the formation and advise the leader if an unsafe condition is noted.

3.6.4.2.6. Maintain situational awareness.

3.6.4.2.7. Be prepared to assume the lead.

3.6.5. **Communications and Radio Procedures:**

3.6.5.1. **General.** Radio discipline is a critical factor in maintaining formation integrity. Strict radio and/or interphone discipline must be enforced to ensure flight safety and mission effectiveness.

3.6.5.1.1. Radio terminology should be standardized to the maximum extent possible. A radio plan for the formation will be developed by the flight lead (to include use of Have Quick, secure voice, HF, AFSATCOM and comm out procedures).

3.6.5.1.2. Transmit only information essential to the safe conduct of the mission. Radio calls will be clear and concise.

3.6.5.1.3. Do not fly formation on training sorties without interplane communications capability, except in an emergency. Except for loss of radios, all flight members will maintain a common frequency. All capable aircraft should monitor the same ATC frequency.

3.6.5.2. **Use of Radios:**

3.6.5.2.1. Flight lead will initiate all frequency changes. The wingman will acknowledge before changing frequencies. Lead must ensure that two is on frequency before initiating check-in or making any radio calls to ARTCC, etc. If two does not respond, a secondary radio or guard may be used to direct the wingman to the proper frequency. Specific procedures should be prebriefed by flight lead. Under EMCON procedures/radio silent operations, planned frequency changes may be performed on briefed timing or at briefed points. All flight members must be on a common frequency.

3.6.5.2.2. One radio will be designated the primary and the other secondary. ATC operations will be conducted in the primary radio. The secondary radio will be used for other than ATC communications such as command post, FENCE check, BDA, etc.

3.6.5.2.3. **Call Signs:**

3.6.5.2.3.1. Always include your assigned call sign for flight communications. In an exercise or actual combat with many aircraft and many people on the radio, situation awareness is the key to success. Using incomplete or unassigned call signs may add to the confusion.

3.6.5.2.3.2. To preclude confusion by ARTCC, if aircraft positions within a flight are changed, do not change the flight call sign and Mode III IFF squawk. However, change the position numbers within the flight to the one assumed.

3.6.5.2.3.3. Formation aircraft will retain and use individual tactical call signs for all rendezvous and air refueling operations unless directed otherwise in operational plans. For large formation air refueling operations, aircraft may use assigned air refueling position for communications with their air refueling mate. For any abnormal or emergency situations use tactical call sign.

3.6.5.3. **Emission Control (EMCON).** Emission control must be practiced to the greatest extent possible during peacetime if crews are to effectively use it in wartime. EMCON options will be briefed by the formation lead. Use Have Quick/KY-58 to the maximum extent possible.

3.6.5.3.1. The following list of EMCON options provides standardized terminology and procedures for formation requirements. During training, do not sacrifice safety in order to strictly adhere to EMCON procedures.

3.6.5.3.2. **Emission Option 1.** Any and all emitters are authorized to ensure timely training or feedback and maximum safety. Normally used for initial qualification, requalification, or instructional purposes.

3.6.5.3.3. **Emission Option 2 (Restricted Communications).** Radio silent formation except for rendezvous and air refueling conducted with only two radio exchanges. Fifteen minutes prior to the ARCT or rendezvous, the receivers will advise the tankers of call signs, changes in timing (or on time), and receiver altitude. The tanker will verify altitude and timing. For example, the exchange would be "Bat 11 flight, FL 250, on time," followed by "Silky 61, FL 260, on time." Tankers and bombers will use the adjusted ARCT, if established, during the 15 minute call. If either the tanker or the bomber is not at the planned altitude by the 15 minute call, another radio call is required as soon as the applicable aircraft is established at the required altitude. Use the minimum radio transmissions necessary. All other emitters are authorized. Essential radio communications for safety of flight may be made. An abbreviated precontact radio check is required as the receiver closes to precontact. The boom operator will transmit numerical call signs only, i.e. "11, 61." The receiver will respond with his call sign--"11." If this check cannot be completed, do not accomplish air refueling unless mission priority or receiver emergency fuel status dictates otherwise. Receivers will not depart precontact until either this radio check is accomplished or visual signals direct approach to contact. EMCON 2 is the desired standard for daily refueling operations.

3.6.5.3.4. **Emission Option 3 (Communications Out).** Radio silent formation, including rendezvous and refueling. The use of other emitters is authorized unless prohibited by the supported operations plans, etc. During training, essential radio communications for safety of flight may be made.

3.6.5.3.5. **Emission Option 4 (Emission Out).** No emission (radios, Doppler, navigation transmitters, radar, radar altimeters, IFF, exterior lighting, etc.) will be used unless specifically authorized by Air Tasking Orders (ATOs), Rules of Engagement (ROEs), operations plans, Safe Passage procedures, or other mission directives.

3.6.5.3.6. **Emission Options 2 through 4.** When using one of these options, use the boom interphone when possible. Tanker and receiver planners will coordinate and thoroughly brief crews on: formation procedures, type rendezvous, RZ point and time, tanker and receiver altitudes, formation breakup procedures (including refueling are departure time and backup com-

munication procedures). If different options are to be used during different phases of the route, this should be included in the briefing.

NOTE:

A radio silent launch and mission may be conducted with proper planning, briefing, and prior coordination.

3.6.6. **Collision Avoidance:**

3.6.6.1. **General.** Each aircrew member shares the responsibility to avoid collision. The wingman retains primary responsibility for deconfliction--if the wingman cannot do this he must inform lead. This responsibility transfers to the flight lead if the wingman loses visual, electronic contact, or situational awareness.

3.6.6.2. **Lost Wingman Procedures.** Use these procedures when visual or radar contact is lost or cannot be maintained while flying formation. In any lost wingman situation, immediate separation of aircraft is essential to maintain safety. Upon losing sight of or radar contact with lead or if unable to maintain formation duties due to spatial disorientation, the wingman will simultaneously execute the applicable lost wingman procedure while transitioning to instruments. Use a bank angle equal to the number of degrees to turn to achieve separation. Smooth application of control inputs is imperative to minimize the effects of spatial disorientation. Any aircraft which can maintain visual or radar contact with an aircraft executing a lost wingman maneuver will remain in formation with that aircraft until otherwise directed by lead. When lead is notified by a lost wingman, lead will take appropriate action, as the situation dictates, until assuring positive separation. Lead will establish a reference heading and altitude after initial separation is assured. During recovery, if the flight has a block altitude clearance wingman should establish appropriate altitude separation.

3.6.6.2.1. **Two Aircraft Flights:**

3.6.6.2.1.1. In wings level flight, simultaneously transition to instruments, inform lead, turn 15 degrees away and maintain heading for 15 seconds, then resume course. Reestablish formation position or obtain separate clearance if required.

3.6.6.2.1.2. On the OUTSIDE of the turn, transition to instruments, roll to wings level, and inform lead. Continue straight ahead to ensure separation prior to resuming turn.

3.6.6.2.1.3. On the INSIDE of the turn, simultaneously transition to instruments to maintain established bank angle, reduce airspeed by 10 KIAS, and inform lead. Lead will simultaneously roll wings level, maintain airspeed, and acknowledge wingman's call. If lead has acknowledged the lost wingman call and confirms that he has rolled wings level, the wingman will, after 15 seconds, roll wings level, establish 500 feet altitude separation, turn to lead's reference heading and attempt to acquire on radar or visually. If lead does not acknowledge loss of visual contact, maintain established bank angle, establish 500 feet altitude separation, roll out on new heading, attempt to acquire lead on radar and form into enroute formation position. If radar contract cannot be reestablished, obtain separate clearance from the controlling agency.

3.6.6.2.2. **Three Aircraft Flights:**

3.6.6.2.2.1. As it is impossible for number three to immediately ascertain if number two is still tied to lead, it is imperative that number three's actions be based on the assumption that number two is also separated.

3.6.6.2.2.2. In wings level flight (climbing, descending, or level) simultaneously transition to instruments, inform lead, turn 30 degrees away, and maintain new heading for 30 seconds then resume course. If unable to reestablish position within the formation, obtain separate clearance.

3.6.6.2.2.3. On OUTSIDE of the turn, simultaneously transition to instruments, inform lead and reverse direction of turn for 15 seconds to ensure separation from lead and number two.

3.6.6.2.2.4. On the INSIDE of the turn, simultaneously transition to instruments to maintain established bank angle, reduce airspeed by 20 KIAS and inform lead. Lead will simultaneously roll wings level, maintain airspeed, and acknowledge the wingman's call. If lead acknowledges the lost wingman's call and confirms wings level, establish 1,000 Foot altitude separation, turn to lead's heading, and attempt to acquire lead and/or number two on radar. If lead does not acknowledge the lost wingman's call, maintain established bank angle, establish 1000 Foot altitude separation, roll out on new heading , attempt to acquire lead and/or number two on radar, and reestablish enroute formation position. If radar contact is not reestablished, obtain separate clearance from the controlling agency.

3.6.7. **In-flight Checks.** In-flight checks will be based on mission timing or action points. Actual procedures will be covered in the preflight briefing. EMCON will be used to the maximum extent possible. Other unplanned mission checks will be directed by lead.

3.6.8. **Mission Planning:**

3.6.8.1. The formation briefing will be conducted by the flight lead and will cover all planned activities, starting with the objectives of the mission, procedures and techniques, specific EMCON and division of formation responsibilities. Specific emphasis will be placed on all areas of flight that are considered critical: rejoins, level off, descents, air refueling, low level entry procedures, range procedures and formation breakup. Lead will use the formation briefing guide in attachment three.

3.6.8.2. Hazards associated with wake turbulence/wing tip vortices in multiple heavy aircraft formation should be thoroughly understood by all formation members. Pre-mission formation briefings will include emphasis on proper lateral and/or vertical positioning to avoid encountering these hazards.

3.6.9. **Ground Operations:**

3.6.9.1. Conduct ground operation as a formation. Lead will check the flight in and get clearance for the formation. Keep lead or wing informed of maintenance delays or problems encountered during preflight.

3.6.9.2. Taxi as a flight, 500 foot spacing should prevent FOD damage from lead's exhaust. Do not stagger--use the taxi line.

3.6.9.3. EOR checks. Lead will pull into the hammer head and wingman, if able, remain on centerline ensuring adequate wingtip clearance. After wingman call brakes set and nose cold, lead clears the Supervisor of Flying (Foxtrot) in for the formation.

3.6.10. **Takeoff Procedures:**

3.6.10.1. Plan to attain 1 minute spacing between brake release for formation members. Takeoff intervals may be varied as necessary depending on aircraft performance, training requirements, weather conditions, or mission requirements. For practice MITOs, aircraft spacing may be reduced to 30 seconds. Practice MITOs are restricted to 2-ship only, 300,000 lbs gross weight, TRT and in the base escape master mode. Practice MITOs will only be accomplished as part of a nuclear training mission. Takeoff aborts will be called by the aborting airplane once the aircraft is fully under control. If lead aborts, wingman should taxi clear to maintain formation integrity unless the mission dictates otherwise. If wingmen abort, they may rejoin enroute if briefed by lead.

3.6.10.2. Use caution for wake turbulence on departure, and adjust climb routing to avoid areas of potential wake turbulence as required. If wake turbulence is encountered, smoothly adjust flight path laterally to exit turbulence as soon as possible. Do not adjust throttles, and use caution for G limitations.

3.6.10.3. Lead will climb out at 280 KIAS until .76 mach and then climb at .76 mach. Lead should limit bank angle to 25 degrees during departure to allow wingmen to use cutoff, as required. Wingmen can use airspeeds up to 325 KIAS or .76 mach to facilitate the rejoin. Use caution to avoid excessive closure rates during initial rejoin. During intermediate level off, wingmen will stack down 500 feet remaining one mile in trail. In IMC, lead will call altitude every 5000 feet, report level off, and report turns if two is not tied on radar. Wingmen will call tied-on radar, visual, and when in position. Wingman will use cut off only when visual with lead or preceding aircraft and with ATC approval. In IMC, wingmen will turn over the same geographical point based on timing from lead's call, radar, or air to air TACAN.

3.6.10.4. During the departure and climb, if any wingman does not obtain lead visually or electronically, execute lost wingman procedures and report lost wingman when able.

3.6.11. **Aborts.** Inform the formation if aborting after takeoff. Aborting aircraft will clear the stream. Lead should attempt to assist the aborting aircraft in any way possible. If the mission allows, lead may designate an escort. Aborting aircraft will obtain ATC clearance prior to altering their route of flight or declare an emergency and deviate as necessary, whichever is appropriate.

3.6.12. **Level Offs.** At final level off altitude, lead will maintain prebriefed mach to expedite closure. The following aircraft will close at approximately .04 mach closure to expedite the join up. After join up the flight will resume briefed airspeed. Lead will obtain an altitude block for all intermediate and final level off altitudes. Lead will level off at the lowest altitude in the block; the number two man will stack up 500 feet and one mile in trail. Remaining aircraft will stack up 500 feet and one mile in trail from the preceding aircraft. Maintain this radar trail position by use of RWS/AAT, air to air TACAN, or visual references if VMC.

3.6.13. **En Route Trail Formation:**

3.6.13.1. En route trail consists of two or more aircraft, in trail stacked at 500 foot altitude with 1 NM separation between aircraft (2 NM may be used for contingency operations). The primary

means of maintaining proper position are the radar and air to air TACAN in IMC, and visual in VMC. Lead will call turns, climbs, and airspeed changes in IMC if mission EMCON allows. Weather, tactical considerations, and mission objectives dictate the degree of electronic emissions used.

3.6.13.2. Maintaining proper position requires constant attention and effort, and is essential to an effective formation. Lead should ensure the formation is aware of any changes in heading, airspeed, altitude, or formation duties through precise prebriefing and interplane communications. Lead should fly as stable a platform as possible. Any deviation from announced altitude, airspeed or heading will be magnified by the trailing aircraft. Once the formation is established, wingmen should maintain position with reference to the preceding aircraft.

3.6.13.3. **Airspeed and Altitude.** Closely monitor and control airspeed and altitude throughout formation flight. Power settings and rates of climbs, descents, airspeed increases and decreases should be prebriefed or announced on interplane frequency to allow formation members to maintain position. Plan the mission to consider the airspeed requirements of the heaviest aircraft.

3.6.13.4. **Autopilot Operation.** Use the autopilot to reduce fatigue and aid in altitude separation.

3.6.13.5. **Echelon Formation.** Echelon formation procedures are in the applicable air refueling manuals. Maintain proper echelon spacing and angle using radar and/or visual means. Normally, fly echelon formation on lead's right wing.

3.6.13.5.1. Assume echelon in straight and level flight by succeeding aircraft turning from formation heading in increments of 5 to 10 degrees. Aircraft will return to lead's heading as they approach proper echelon position.

3.6.13.5.2. Turns into an echelon are limited to 15 degrees of bank. All aircraft must execute the turn at the same time, or when time permits, maneuver back to trail formation.

3.6.13.5.3. Turns greater than 30 degrees into the echelon are permitted only in an emergency. If turns into the echelon greater than 30 degrees are required direct the formation back into radar trail and then execute the turn.

3.6.14. **Mid-Mission Rejoin:**

3.6.14.1. All mid-mission rejoins will be thoroughly prebriefed by lead. A mid-mission rejoin should provide a sufficient straight leg beyond the planned rendezvous point to effect join-up. The preferred method of rejoin is to arrive over a common navigational control point, then departing on a common leg. Complete the rejoin before executing any other training (i.e., AR, Low Level etc.).

3.6.14.2. Lead will cross the common point on time with rejoining aircraft crossing the common point 30 seconds in trail and with 1,000 feet of altitude separation. Once the rejoining aircraft have lead visually or tied on radar, lead will clear the rejoining wingman to close to enroute formation. Lead will direct altitude changes as required.

3.6.15. **Position Changes:**

3.6.15.1. Changes in formation position may be required to move wingmen with degraded systems to a position where their degradation is minimized. Position changes will be briefed during the premission formation briefing. Lead will ensure all pilots understand the procedures for formation position changes.

3.6.15.2. Altitude separation is the most critical element during position changes. Maintain original altitude until lateral separation is assured. Accomplish formation position changes only in straight and level flight. Once initiated, the position change will take priority over all other activities. Prior to initiating a position change, lead will ensure sufficient straight and level time and airspace is available to complete the change.

3.6.15.3. Maintain radar or visual contact throughout the position change. If radar contact and visual contact is lost during the position change, maintain altitude separation. Notify lead and attempt to re-establish radar or visual contact by all means available. Do not attempt to rejoin the formation until establishing positive radar or visual contact.

3.6.15.4. **Visual Formation Lead Changes.** When a lead change is directed, the wingman moves to a line abreast position with a minimum of 1000 feet wing tip spacing. After confirming positive lead change altitudes and reset IFF as required. The old lead will move aft to the trailing wingman position and then assume radar trail position.

3.6.15.5. **IMC Formation Lead Changes:**

3.6.15.5.1. **Formation Position Change--Any Aircraft Moves to Lead:**

3.6.15.5.1.1. **Step 1.** Lead determines the aircraft to move forward (maneuvering aircraft). The maneuvering aircraft will echelon (normally right) using 30 degrees of bank and turning 30 degrees off heading. When 30 degrees off heading, reverse the turn using 30 degrees of bank and return to formation heading. This will provide approximately 2 NM offset.

3.6.15.5.1.2. **Step 2.** After established in echelon, the maneuvering aircraft will accelerate forward, increasing airspeed 30 KIAS maximum. The maneuvering aircraft should resume formation airspeed and stabilize approximately 1¼ NM forward from the original lead. When the maneuvering aircraft is in the forward echelon and positive visual and/or radar contact is established, conduct the required altitude changes.

3.6.15.5.1.3. **Step 3.** The maneuvering aircraft will then assume lead position and clear the formation members to fall into trail position.

3.6.15.5.1.4. **Step 4.** The formation lead should be advised by the last aircraft after the formation is reformed.

3.6.15.5.2. **Formation Position Change--Any Aircraft to the End of the Formation:**

3.6.15.5.2.1. **Step 1.** Lead determines the aircraft to move aft (maneuvering aircraft). The maneuvering aircraft will echelon (normally right) using 30 degrees of bank and turning 30 degrees from the formation heading. When 30 degrees off heading, reverse the turn using 30 degrees of bank and return to formation heading. This will provide approximately 2 NM of offset.

3.6.15.5.2.2. **Step 2.** After establishing in echelon, the maneuvering aircraft will decelerate toward the end of the formation, decreasing airspeed 30 KIAS MAX. The maneuvering aircraft formation airspeed and stabilize approximately ¾ NM aft of the last aircraft. When the maneuvering aircraft is in the aft echelon position and positive visual and/or electronic contact is established, formation lead directs required altitude changes.

3.6.15.5.2.3. **Step 3.** The maneuvering aircraft will then move into trail position using no more than 15 degree heading corrections.

3.6.15.5.2.4. **Step 4.** The formation lead should be advised by the last aircraft after the formation is reformed.

3.6.16. **Air Refueling Procedures:**

3.6.16.1. These procedures supplement T.O. 1-1C-1-37, *B-2A Flight Crew Air Refueling Procedures*.

3.6.16.2. Lead will put the formation at one NM radar trail, stacked up 500 feet. Once rolled out behind the tanker, (ARIP or RZ) the wingman will maneuver to the echelon position (60 degrees from lead's fuselage reference line and one NM lateral spacing).

3.6.16.3. Visual formation will be authorized at OG/CC discretion once procedures are developed and incorporated into TO 1-1C-1-37.

3.6.16.4. **Wingmen/Receiver Duties:**

3.6.16.4.1. To assist the formation leader and ensure the safety and integrity of the flight, the wingmen/receiver shall:

3.6.16.4.1.1. Keep the leader in visual or electronic contact.

3.6.16.4.1.2. Maintain briefed position.

3.6.16.4.1.3. Anticipate corrections and changes.

3.6.16.4.1.4. Monitor formation operations and notify the cell leader of unsafe conditions.

3.6.16.4.1.5. Maintain meteorological watch as required.

3.6.16.5. **Post Air Refueling Rejoin:**

3.6.16.5.1. Lead will be established, stacked down 500', in a left 60 degree echelon position one mile laterally from the tanker.

3.6.16.5.2. Once two completes air refueling, lead will descend to the bottom of the block and two will drop to the bottom of the block plus 500 feet. Two will also decrease power so lead can pass off the left wing.

3.6.16.5.3. Once two has lead on radar he can then maneuver to the radar trail position.

3.6.16.5.4. Once three completes air refueling, the tanker will climb to the top of the block. Three will maintain altitude and reduce power as necessary to allow the formation to pass off the left side.

3.6.16.5.5. Once three has two on radar, he can then maneuver to the radar trail position.

3.6.16.6. **Late Arrivals:**

3.6.16.6.1. Delayed B-2 aircraft will use IMC procedures to accomplish non-standard formation join-up while part of the formation is conducting air refueling.

3.6.16.6.2. Contact the tanker on air refueling frequency to obtain permission to join the formation, and if approved, obtain heading, airspeed, and altitude information.

3.6.16.6.3. Contact the controlling ARTCC and state intentions to obtain clearance and accept MARSA.

3.6.16.6.4. Joining aircraft must have positive radar contact and/or visual contact before leaving an altitude. Maintain an altitude 2,000 feet below the refueling block altitude until within one NM of the formation. At one NM, notify the formation, climb and control airspeed (maximum overtake airspeed within one NM is 30 KIAS) to arrive in the echelon position, on speed.

3.6.17. **Low Level.** (Formation low level is currently not authorized.)

3.6.18. **Tactical Formation.** (Currently not Authorized.)

3.6.19. **Formation Break-up and Recovery.** Proper techniques to acquire formation separation and smooth recovery can be as important as formation join-up techniques.

3.6.19.1. Long delays in acquiring separation can result in delays or extensive vectoring during recovery. Do not initiate formation separation procedures without ARTCC approval.

3.6.19.2. Breakup and recovery will normally be accomplished through approach control sequencing using vectors and/or airspeed differential.

3.6.19.3. Aircraft will not clear off/follow ATC instructions until cleared by lead.

3.6.19.4. Larger formations should plan to breakup into 3-ship elements prior to arrival at destination to minimize approach control saturation.

3.7. Chase Procedures. Chase operations may be required to aid in the safe launch or recovery of the B-2. Chase operations at Whiteman AFB will be conducted by chase qualified pilots using T-38 aircraft.

3.7.1. Chase pilots will be highly experienced and CTP formation qualified. Chase pilots will complete a safety chase training program IAW **Chapter 8** and 509th OG OI 11-CTP.

3.7.2. The following restrictions apply to chase operations:

3.7.2.1. Chase missions will normally be flown two ships.

3.7.2.2. Minimum altitude for airborne pickups is 500 feet AGL.

3.7.2.3. Minimum safety chase spacing is 150 feet.

3.7.2.4. Never fly directly over or under the other aircraft.

3.7.2.5. Conduct a thorough briefing between all participating aircrews.

3.7.2.6. Chase operations are limited to daylight hours.

3.7.2.7. All aircraft will be on a common UHF frequency.

Chapter 4

INSTRUMENT PROCEDURES

4.1. Approach Category. The B-2A is designated as an approach category **D** aircraft. If a case exists where airspeed for circling approaches exceeds 166 knots, use category **E** minima.

4.2. Practice Instrument Approaches. Pilots may fly instrument approaches to other than home base under the following conditions:

4.2.1. Airfield must be designated by 509 OG/CC as suitable for B-2 recoveries.

4.2.2. Off-station training will be coordinated with the top 3 during mission planning day.

4.2.3. Crews must plan the mission so as to have adequate fuel to arrive at the home base/alternate IAF with 18,000 lbs of indicated fuel.

Chapter 5

AIR-TO-SURFACE WEAPONS EMPLOYMENT

5.1. General. References: AFTTP 3-1V23, ACCR 51-18, T.O. 1B-2A-34-2-1, T.O. 1B-2A-25-1, and T.O. 1B-2A-25-2 are the primary references for weapons employment theory, planning techniques, and analysis. AFI 11-2B-2V1, *B-2--Aircrew Training*, contains qualification and scoring criteria. AFI 11-214 contains operating and training procedures. **Chapter 8** to this volume contains additional specific guidance.

5.2. Live Ordnance Procedures:

5.2.1. Minimum altitude for all range operations will be IAW applicable aircraft and weapon tech orders, or range restrictions or 1,000 feet AGL, whichever is higher.

5.2.2. Weapon Unlock/Release Enable will not be commanded unless there is an intent to expend that ordnance IAW range procedures or actual combat mission requirements.

5.3. In-flight Procedures. Observe the following safety precautions for flight activity with weapons (the definition of a weapon is any live, inert, or training munition):

5.3.1. No release system, indicator, or weapon bay door malfunction may exist.

5.3.2. While carrying weapons, do not conduct simulated bomb runs, unusual maneuvers, touch and go landings, or other potentially hazardous activity. Carrying weapons does not preclude accomplishing fighter intercept activity, air refueling, or transition (excluding touch and go's).

5.3.3. Weapon Unlock/Release Enable will not be completed until the aircraft is within the designated bombing range.

5.3.4. If release is verified by the Range Control Officer (RCO) or the aircrew using the B-2 Mission Management System (MMS), aircrew may conduct additional training without restriction provided no weapons remain on the aircraft.

5.3.5. Crews experiencing an unsuccessful release attempt or hung store may contact the RCO for permission to release or jettison the hung weapon(s) in a suitable area. Follow RCO instructions and all warnings and cautions in the appropriate Dash-34 series tech order. If a hung weapon cannot be jettisoned/released, or if the crew elects not to jettison, the crew will accomplish the abort/post release checklist and return directly to home station or other suitable landing base, avoiding overflight of populated areas. Air refueling may be accomplished for safe recovery of the aircraft.

5.4. Off-Range Simulated Weapons Employment. Procedures in AFI 11-214 and the following apply:

5.4.1. Off-range simulated weapons employment will not be conducted with hung ordnance aboard the aircraft.

5.4.2. Do not operate in SIM modes when live or inert weapons are aboard the aircraft.

5.5. Hung Weapon(s) Pattern Procedures. Refer to **Chapter 8** for recovery procedures at Whiteman with hung weapons. If the crew is required to land at an airfield other than Whiteman with hung or retained weapons, advise the local authorities of the situation so that proper coordination can be accomplished with their safety office.

Chapter 6

ABNORMAL OPERATING PROCEDURES

6.1. General. This chapter contains procedures to be followed when other-than-normal situations occur. They do not, however, replace or supersede procedures contained in the flight manual.

6.1.1. Accept no aircraft for flight with a malfunction which denies the crew the ability to safely operate in all phases of flight or any malfunction that, if airborne, would require mission termination.

6.1.2. Once a malfunctioning system is isolated and/or the fault corrected, follow guidance do not use that system again unless use in a degraded mode is essential for recovery. Do not conduct ground or in-flight troubleshooting after completing flight manual emergency procedures.

6.1.3. Fuel dumping will be conducted only to reduce aircraft gross weight in an emergency. When circumstances permit, dump over unpopulated areas above 8,000 feet AGL. Advise the appropriate air traffic control agency of intention, altitude, and location when fuel is dumped and when the operation has been completed.

6.1.4. Aircraft will not be taxied with a brake system malfunction, and will not normally be taxied with a nosewheel steering malfunction. If a nosewheel steering malfunction occurs in-flight and cannot be cleared/reset, the OG may allow the aircrew to taxi the aircraft clear of the runway using nosewheel steering override or differential braking. After clearing the runway, the crew will stop until the malfunction can be cleared.

6.2. Takeoff Aborts:

6.2.1. Anytime an aircraft aborts takeoff and for any reason suspects hot brakes, taxi the aircraft to the hot brake area (if possible), and follow hot brake procedures as outlined in **Chapter 8**. The brakes/tires must be checked cool prior to taxiing into a congested area or attempting a second takeoff.

6.2.2. Recheck takeoff data prior to a subsequent attempted takeoff. Particular emphasis should be placed on changes in environmental conditions, gross weights, and potential brake energies if a subsequent aborted takeoff is experienced.

6.3. Air Aborts:

6.3.1. The mission will be aborted regardless of apparent damage or subsequent normal operation, for any of the following:

6.3.1.1. Bird strike/FOD.

6.3.1.2. Over G.

6.3.1.3. Any FCS CAUTION or uncommanded flight control malfunction which apparently returns to normal IAW **Chapter 8** guidance.

6.3.1.4. Engine flameout or shutdown even if it is successfully restarted.

6.3.1.5. Confirmed or suspected fuel leaks. Reduce gross weight, if possible, to a normal landing weight. Do not allow CG to exceed safe limits or attempt any training activity which would jeopardize safe recovery of the aircraft. Contact ACC controlling agencies or assistance, if time and conditions permit.

NOTE:

Land as soon as practical using a straight in approach for situations listed under paragraph **6.3.1.**.

6.4. Radio Failure. When all on-board radios are inoperative, accomplish procedures outlined in AFI 11-205, *Aircraft Cockpit and Formation Flight Signals*, and FLIP. Local procedures will be used for radio-out landing patterns.

6.4.1. **IFF/SIF Failure.** Immediately notify controlling agencies if the IFF is inoperative, and provide accurate position reports for separation from other traffic.

6.5. Low Level Procedures. Whenever the aircrew cannot positively determine that the aircraft is within the approved route boundaries/planned route, immediately climb to a safe altitude. If not in contact with ARTCC, squawk emergency until contact is made.

6.5.1. Abort low level in accordance with ACCR 51-18 and the additional guidance in **Chapter 8**.

Chapter 7

CREW AND AIRCRAFT OPERATIONAL LIMITATIONS AND RESTRICTIONS

7.1. Scope. This chapter adds B-2A aircraft limitations and restrictions to those already specified in flight manuals and applies to all ACC aircrews.

7.2. Crew Requirements. The minimum crew is specified in T.O. 1B-2A-1. Waiver information for special situations is located in AFI 11-2B-2V1.

7.3. General Limitations:

7.3.1. **Emergency Procedures.** Do not practice in-flight emergency procedures when weapons are loaded on the aircraft.

7.3.2. **New/Modified Aircraft and Equipment.** Crewmembers not qualified in the operation of new or modified aircraft equipment will not operate that equipment unless under the supervision of an instructor pilot qualified in that equipment.

7.3.3. **Authorized Fuel Loads.** Aircraft will be loaded with standard fuel loads IAW **Chapter 8** fuel requirements.

7.3.4. **Performance Planning Criteria.** A minimum of 1,000 feet overrun must be available in addition to the minimum runway required (MRR). When 1,000 feet of overrun are not available, reserve 1,000 feet of the runway to satisfy the minimum overrun requirements. Runway available for takeoff planning must be actual runway length minus any portion of the runway used to satisfy overrun requirements at the liftoff end of the runway.

7.3.5. **Stalls and Approach to Stalls.** Practice stalls and approach to stalls are prohibited inflight and authorized in the WST only.

7.3.6. **Unusual Attitudes.** Practice unusual attitude recoveries are prohibited inflight and authorized in the WST only.

7.3.7. **Flight Characteristics Demonstrations (FCD).** Practice FCDs are prohibited in flight and authorized in the WST only.

7.4. Specific Limitations:

7.4.1. **Steep Turns.** Steep turns will be accomplished at 45 degrees of bank within alpha and "G" restrictions.

7.4.2. **Fuel Minimums:**

7.4.2.1. The fuel reserve requirements of AFI 11-202V3, *General Flight Rules*, apply except as outlined below:

7.4.2.1.1. Plan missions to accomplish final landing with a minimum of 18,000 pounds indicated fuel.

7.4.2.2. Fuel reserves for conventional operations will be in accordance with the operations order.

7.4.2.3. The minimum fuel reserve for remote or island destination is 30,000 pounds useable fuel. The definition of a remote or island airfield is contained in ACC Supplement 1 to AFI 11-206 (being revised into AFI 11-202V3ACC1). If weather conditions are such that an alternate is required IAW AFI 11-202V3, then minimum fuel reserve is that required to delay for 2 hours.

7.4.3. **Air Refueling Limitations and Restrictions:**

7.4.3.1. Instruction in air refueling procedures, excluding rendezvous, is prohibited with nuclear weapons on board.

7.4.3.2. Do not attempt emission option 2 rendezvous or refueling training unless at least 1,000 feet vertical separation is assured between the bomber and the tanker, and communications are established. Brief emission option 2, 3, or 4 procedures before flight.

7.4.3.3. Do not accomplish air refueling during training missions when any of the following conditions exist:

7.4.3.3.1. When encountering turbulence which, in the opinion of the pilot or boom operator, denies a safe margin of control of either aircraft or boom.

7.4.3.3.2. When the forward flight visibility during rendezvous is less than one-half mile, or less than one mile without an operational tracking radar.

7.4.3.3.3. When control stick steering (CSS) is engaged.

7.4.3.3.4. When a FCS CAUTION exists, except when necessary for safe recovery of the aircraft.

7.4.3.3.5. Less than all four engines operating**,** except when necessary for safe recovery of the aircraft. (This includes retarding a throttle to idle, simulating the loss of an engine.)

7.4.3.3.6. When the tanker has less than all engines operating.

7.4.3.3.7. When any flight control problems are suspected or encountered in flight which, in the opinion of the receiver pilot, would deny a safe margin of control.

7.4.3.3.8. When tanker aircraft is unable to retract landing gear.

7.4.3.3.9. Night refueling with KC-135s when the tanker boom operator has not previously refueled the B-2 in the daylight. Exception to this restriction is if a night-qualified KC-135 instructor boom operator is on board.

7.4.3.4. Do not conduct air refueling after a known loss of tanker disconnect capability (including tanker manual operation without tanker disconnect capability or receiver manual or override) except as authorized below:

7.4.3.4.1. During an emergency fuel situation.

7.4.3.4.2. When necessary to complete the following missions: operational nuclear or conventional, ORI, emergency evacuation, deployment, redeployment, or as specifically authorized in operations orders.

7.4.3.4.3. When conducting operations under any of the above conditions, limit contact time and number of contacts to that necessary to complete mission requirements of specific HHD requirements.

7.4.3.5. Manual or override boom latching procedures training must be under instructor pilot supervision. Brief procedures between receiver pilots and boom operators as required by applicable air refueling tech orders. Both tanker and receiver systems must be fully operational.

7.4.3.6. Do not accomplish breakaway training from the contact position or boom limit demonstration unless:

7.4.3.6.1. The receiver system is in normal.

7.4.3.6.2. The receiver and tanker have demonstrated normal disconnect capability prior to initiating maneuver.

7.4.3.7. For breakaway training, the tanker pilot and boom operator and the receiver pilot will coordinate the maneuver prior to in-flight accomplishment. In-flight coordination must include when the maneuver will occur and who will give the command of execution.

7.4.3.8. For boom envelope demonstrations, the receiver pilot and the boom operator will confirm normal disconnect capability and discuss the maneuver prior to accomplishment. In-flight coordination must include the receiver pilot informing the boom operator when commencing the demonstration, the limit to be demonstrated, and when terminating the demonstration.

7.4.3.8.1. Boom envelope demonstrations must be performed under the supervision of an IP.

7.4.3.9. Accomplish tanker copilot refueling with the tanker auto pilot off only after acknowledgment is passed from the receiver pilot. The receiver must be flown by a qualified crewmember.

7.4.4. **Low Level Limitations.** This paragraph establishes limitations and restrictions for IFR routes (IR), VFR routes (VR), and low level environment training activity. The low level environment defined by this volume is at or below 5,000 feet AGL. Refer to ACCR 51-18 for additional information.

7.4.4.1. Do not fly low level lower than 1,000 feet AGL or in accordance with ACCR 51-18 or FLIP AP-1B, which ever is higher.

7.4.4.2. Weather, visibility, and equipment requirements are specified in ACCR 51-18.

7.4.5. **Traffic Pattern Limitations:**

7.4.5.1. Maximum bank angle for visual patterns is 45 degrees.

7.4.5.2. Use the following procedures for all landings:

7.4.5.2.1. Plan to land (IFR and VFR) within the designated touchdown zone (TDZ). AFJMAN 11-226, *US Standard for Terminal Instrument Procedures (TERPS)*, defines the TDZ as the first 3,000 feet of the landing runway beyond the threshold.

7.4.5.2.2. Plan normal landings (IFR and VFR) to touch down on centerline within the TDZ. The desired touchdown point is from 750 to 2,500 feet beyond the threshold. Make the actual touchdown at a point and speed which will permit a safe, full stop landing within the remaining runway. Initiate a go-around if this is not possible. Brief procedures to be used in the event of an unplanned go-around before landing.

7.4.5.3. Touch-and-go landings are authorized only under the following conditions:

7.4.5.3.1. Flight manual restrictions and procedures apply.

7.4.5.3.2. Land in the designated TDZ at a point which would allow a normal full-stop landing on the remaining runway. Initiate a go-around if this is not possible.

7.4.5.3.3. RCR must be 9 or higher for touch-and-go landings.

7.4.5.3.4. The flight duty limitations of AFI 11-202V3 apply.

7.4.5.3.5. Non-instructor pilots require an minimum of 1,000 foot ceiling and 3 miles visibility.

7.4.5.4. Instructor pilot or MC will brief, either inflight or during mission planning, the individual being supervised on the following items prior to supervising touch and go landings:

7.4.5.4.1. Flight manual procedures.

7.4.5.4.2. Compressor stalls, including proper preventive action, recognition, and corrective action.

7.4.5.4.3. IP or mission commander taking control of aircraft if necessary.

7.4.5.4.4. Unplanned go-around or refused landing.

7.4.5.5. See **Table 7.1.** for in-flight and traffic pattern limitations.

7.5. Emergency Limitations:

7.5.1. Emergencies place unique demands on both crewmembers. Each situation requires proper analysis, correct application of appropriate procedures, preventive action to preclude recurrence or further degradation, and careful assessment of the aircraft and aircrew's capability to continue the mission. The following general guidance provides a framework for making decisions in response to emergency situations.

7.5.1.1. Maintain aircraft control.

7.5.1.2. Assess the need for emergency egress.

7.5.1.3. Perform required critical actions, assess the degree of degradation, and evaluate the capability to continue the mission. Consult go/no go guide in unit inflight guide.

7.5.1.4. Contact the unit or controlling command post when conditions permit after encountering emergencies. While this should be accomplished as soon as practical, it should not interfere with immediate concerns dictated by the situation: aircraft control, checklist procedures, and notifying ATC. Weigh carefully the impact of continuing the mission versus the capabilities of the aircraft and crew.

7.5.1.5. If aborting the mission, consider the following options:

7.5.1.5.1. Return to the departure base or continue to the destination base via the most direct route, if different.

7.5.1.5.2. Land at the nearest suitable ACC base.

7.5.1.5.3. Land at the nearest possible airfield.

7.5.1.5.4. Further training is not authorized while returning to the local area or reducing gross weight for landing. Prohibited activities include: air refueling (except when required for safe recovery of the aircraft) low level navigation and bombing, fighter activity, and transition.

7.6. Training with Munitions, Cargo, or Missiles on Tactical Aircraft. Refer to ACCR 51-18 for instructions regarding training with munitions or missiles on tactical aircraft.

7.7. Weapons Range Activity Training and Restrictions:

7.7.1. Prior to operating on weapon ranges, all ACC crewmembers will comply with ACCR 51-18, as supplemented, and all associated range guides.

7.7.2. Unit staff must ensure aircrews have the most current range information prior to flight. Schedule ranges per ACCR 51-18.

7.7.3. Direct questions concerning weapon ranges and restrictions to the appropriate agency in charge of the range. If unable to find the OPR or responsible agency, contact HQ ACC/DOR, DSN 574-4661.

7.8. Aircrew and Aircraft Limitations:

7.8.1. Brief all practice AFTTP 3-1 maneuvers or emergency procedures before the maneuver (either inflight or during mission planning).

7.8.2. Do not practice compound simulated emergencies during critical phases of flight except those specifically authorized for Flight Instructor Course (FIC) training.

7.8.3. Resume training only if the designated pilot in command determines no hazard to safe aircraft operations exists. In an actual emergency, terminate all training and emergency procedures practice.

7.8.4. Crewmembers must be mission ready when carrying nuclear weapons.

Table 7.1. Traffic Pattern and Landing Limitations and Restrictions.

Approach Type	Gross Weight	Crosswind Component	Weather	IP Supervision	Night	RCR
Normal Low Approach	300,000	N/A	Approach WX mins	No	Yes	N/A
Touch and Go (***NOTES 1,2,3***)	270,000	20	300/ 1(Non-IP 1000/3)	No	Yes	9 or higher
Sim Eng Out Low Appch (***NOTE 5,6***)	270,000	N/A	**NOTE 4**	No	IP Super-visio n	N/A
Sim Eng Out Landing (***NOTE 6***)	270,000	25 (20 Touch and Go ***NOTE 1***)	NOTE 4 *(Non-IP 1000/3 for Touch and Go*	Yes	Yes	Dry

Notes:

1. 25 knots with IP on board.
2. IP supervision is required if not touch and go qualified.
3. Go around if not in the designated touch down zone. Runway length and RCR consideration must permit an aborted takeoff using computed landing ground run distance.
4. Minimum weather required is circling minima or 1,000 feet/2 miles visibility, whichever is higher.
5. Initiate go-around/missed approach no lower than 200 HAT.
6. Unplanned go-around/takeoff portion of maneuver requires the use of four engines.

Chapter 8

LOCAL OPERATING PROCEDURES

8.1. General. This chapter is reserved for local unit operating procedures. Local **Chapter 8** procedures will not be less restrictive than those contained elsewhere in this volume, nor is the chapter intended to be a single source document for procedures contained in other directives or regulations. Unnecessary repetition of guidance provided in other established directives should be avoided; however, reference to those directives is acceptable when it serves to facilitate location of information necessary for local operating procedures.

8.2. Review. A copy of this chapter will be forwarded to HQ ACC/DOT for review. Returned comments/required changes will be provided to the unit as appropriate. This procedure need not delay distribution.

8.3. Format. The local chapter will be organized in the following format and will include, but is not limited to, the following:

8.3.1. Section A. Introduction/purpose

8.3.2. Section B. Applicability

8.3.3. Section C. Ground Operations

8.3.4. Section D. Flying Operations

8.3.5. Section E. Weapons Employment

8.3.6. Section F. Abnormal Procedures

8.3.7. Attachments. (Illustrations)

8.4. Content. This chapter will include procedures for the following, if applicable:

8.4.1. Command and Control

8.4.2. Fuel Requirements

8.4.3. Divert Instructions

8.4.4. Jettison Areas (IFR/VFR)

8.4.5. Controlled Bailout Areas

8.4.6. Local Weather Procedures

8.4.7. Low Level Route Abort Procedures

8.4.8. Approved Alternate Missions

8.4.9. Unit Standards (Optional)

MARVIN R. ESMOND, Lt General, USAF
DCS/Air and Space Operations

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFPD 11-2, *Aircraft Rules and Procedures*

AFPD 11-4, *Aviation Service*

AFTTP 3-1V23, *B-2 Tactical Employment*

AFI 11-2B-2V1, *B-2--Aircrew Training*

AFI 11-202V3, *General Flight Rules*

AFI 11-205, *Aircraft Cockpit and Formation Flight Signals*

AFI 11-214, *Aircrew, Weapons Director, and Terminal Attack Controller Procedures for Air Operations*

AFJMAN 11-226, *US Standard for Terminal Instrument Procedures (TERPS)*

AFI 33-360V1, *Publications Management Program*

ACCR 51-18, *Bombing/Navigation/AGM Training and Use of the ACC TTR System*

T.O. 1B-2A-1, *Flight Manual*

T.O. 1B-2A-1-2, *Supplemental Flight Manual Systems Operations*

T.O. 1B-2A-1-3, *Supplemental Flight Manual*

T.O. 1B-2A-25-1, *Nuclear Bomb Basic Information*

T.O. 1B-2A-34-2-1, *Nonnuclear Weapons Delivery Manual*

T.O. 1-1C-1-37, *B-2A Flight Crew Air Refueling Procedures*

Abbreviations and Acronyms

ACC—Air Combat Command

ACCR—ACC Regulation

ACCI—ACC Instruction

AFM—Air Force Manual

AFORMS—Air Force Operational Resource Management System

AFR—Air Force Regulation

AFSATCOM—Air Force Satellite Communication

AFTTP—Air Force Tactics, Techniques, and Procedures

AGL—Above Ground Level

AHC—Aircraft Handling Characteristics

ALTRV—Altitude Reservation

ARIP—Air Refueling Initial Point

ATD—Aircrew Training Device

AVTR—Aircraft Video Tape Recorder

BQT—Basic Qualification Training

BRA—Bomb Rack Assembly

BW—Bomb Wing

BQ—Basic Qualified

CBI—Computer Based Instruction

CC—Commander

CDE—Chemical Defense Equipment

CFTR—Combined Force Training

CHUM—Chart Update Manual

CMR—Combat Mission Ready

COMSEC—Communications Security

CPT—Cockpit Procedures Trainer

CSS—Control Stick Steering

CT—Continuation Training

CTP—Companion Trainer Program

CW—Chemical Warfare

DMPI—Designated Mean Point of Impact

DNIF—Duties Not Including Flying

DO—Director of Operations

EC—Electronic Combat

E&E—Escape and Evasion

EEFI—Essential Elements of Friendly Information

EMCON—Emission Control

EOR—End of Runway

ERCC—Engine Running Crew Change

FAA—Federal Aviation Administration

FAAH—Federal Aviation Administration Handbook

FENCE—Fuel, Emissions, Navigation, Communications, Expendables

FCD—Flight Characteristic Demonstration

FCS—Flight Control System

FEB—Flight Evaluation Board

FIC—Flight Instructor Course

FLOT—Forward Line of Own Troops

FTU—Formal Training Unit

GCC—Graduated Combat Capability

HAT—Height Above Touchdown

HF—High Frequency

HHD—Higher Headquarters Directed

HHQ—Higher Headquarters

JDAM—Joint Direct Attack Munition

IAW—In Accordance With

ICWT—Initial Chemical Warfare Training

IFF—Identification Friend or Foe

IFR—Instrument Flight Rules

IMC—Instrument Meteorological Conditions

IOS—Instructor Operator Station

IP—Instructor Pilot

IQC—Initial Qualification Course

IQT—Initial Qualification Training

KIAS—Knots Indicated Airspeed

LC—Lost Communications

MAJCOM—Major Command

MARSA—Military Assumes Responsibility for Separation of Aircraft

MC—Mission Capable/Mission Commander

MCM—Multi-Command Manual

MCR—Multi-Command Regulation

MOA—Military Operating Area

MQT—Mission Qualification Training

MRR—Minimum Runway Required

MS—Mission Support

MT—Mission Trainer

NAF—Numbered Air Force

NMR—Non Mission Ready

NORDO—No Radio

NSS—Navigation System

OG—Operations Group

OMR—Optical Mark Reader

OPSEC—Operations Security

ORI—Operational Readiness Inspection

OSS—Operations Support Squadron

OT&E—Operational Test and Evaluation

RCO—Range Control Officer

RCR—Runway Condition Reading

RCS—Radar Cross Section

RLA—Rotary Launcher Assembly

RPI—Rated Position Index

RQC—Requalification Course

RZ—Rendezvous

SA—Situational Awareness

SAFE—Selected Area For Evasion

SEFE—Stan/Eval Flight Examiner

SELO—Stan/Eval Liaison Officer

SILS—Synthetic Instrument Landing System

SOF—Supervisor of Flying

SQ—Squadron

TA—Terrain Avoidance

TACAN—Tactical Air Navigation

TBD—To Be Determined/Developed

TDY—Temporary Duty

TDZ—Touch Down Zone

TF—Terrain Following

TR—Transit Route

TRP—Training Review Panel

TSO—Target Study Officer

TTR—Tactics and Training Range

UHF—Ultra High Frequency

UMD—Unit Manning Document

VFR—Visual Flight Rules

VHF—Very High Frequency

VMC—Visual Meteorological Conditions

WST—Weapons Systems Trainer

Terms

Alternate Entry Control Point (Alternate Entry Fix)—The route point(s) upon which a control time for an alternate entry into the route is based.

Attempted Release—The SMP issues a release pulse in either automatic or manual mode with all switches correctly positioned.

End Maneuver Area—A control point terminating the weapon run area.

Entry Control Time—The scheduled time over the Primary/Alternate Entry Control Point.

High Altitude Activity—Same as AFI 11-2B-2V1.

Hung Weapon—A live or inert weapon that does not separate from the aircraft following an attempted release.

Live Weapon—Actual munitions containing a primary explosive charge (JDAM, Mk 84, CBU-87, etc.).

Low Altitude Activity—Same as AFI 11-2B-2V1.

Maneuver Area—The portion of an IR between the SMA and End Maneuver Area (EMA).

MASMS (Military Airspace Management System)—The term MASMS in this instruction refers to the automated scheduling system operated by Detachment 1, HQ ACC/DOR, the Military Airspace Management System Office at Offutt AFB, NE.

Medium Altitude Activity—Same as AFI 11-2B-2V1.

Mountainous Terrain—Terrain that varies more than 1000 feet in elevation in 10 NM along published track.

Operating Altitudes—Altitudes for all routes will be published in FLIP AP/1B or AP/3. TF altitudes will be based on a minimum altitude published for the route, the clearance plane settings developed by local airspace managers at the originating activity, Tech Order minimums, or training restrictions, whichever is higher.

Practice Weapon—A weapon intended for training or practice and containing no primary explosive charge.

Primary/Alternate Exit Point—The final waypoint published in FLIP for the primary or alternate exit of a route.

Primary/Alternate TF Initiation Point (Start TF)—The FLIP waypoint at which air crew are authorized to begin TF operations.

Primary/Alternate TF Termination Point (End TF)—The point which denotes the end of TF operations.

Primary Entry Point (PEP)—Referred to as the Entry Fix. The route point upon which a control time for route entry is based.

Retained Weapon—A weapon still on board the aircraft with no release attempted or after successfully releasing the intended number of weapons in a partial load. Weapons not released due to procedural errors are retained.

Start Maneuver Area—The point that defines the start of the weapon run area.

Visual Contour Flight—Operation at a predetermined altitude above the ground, following contours visually with radar altimeter crosscheck.

Weapon—Any live, inert, or training munition.

Addresses

HQ AFSSA/XO and XOF
1535 Command Dr, Suite D-309
Andrews AFB MD 20762-7002

HQ ACC/DO, DOT, and DOTO
205 Dodd Blvd, Suite 101
Langley AFB VA 23665-2789

Attachment 2

FLIGHT BRIEFING GUIDES

NOTE: Ensure the majority of time is used for discussion of tactics, complicated mission segments/special activities, and other new or important items. If regular briefing items have already been discussed during mission planning or are standard, specialty checklist items, they may be reviewed briefly or omitted as appropriate.

A2.1. Roll Call (Crew Number), Security Classification.

A2.2. Review of Weather Planning Factors:

A2.2.1. Takeoff

A2.2.2. Low level (primary and backup)

A2.2.3. Air refueling

A2.2.4. Recovery

A2.3. Mission Profile:

A2.3.1. Priority of training events

A2.3.2. Currency items/problems

A2.4. Mission Data:

A2.4.1. Call Sign

A2.4.2. Mission Date

A2.4.3. Crew Rest/Show/Step

A2.4.4. Arrive at aircraft

A2.4.5. Crew/transition duty day

A2.4.6. Taxi/takeoff/land time/duration

A2.5. Aircraft Number/Maintenance/TCTO Status.

A2.6. Ground Operations/Emergencies:

A2.6.1. Emergency egress/emergency engine shutdown

A2.6.1.1. With/without interphone

A2.6.1.2. After taxi

A2.7. Takeoff Performance Review:

A2.7.1. Fuel load/gross weight/weapons load

A2.8. Takeoff/Departure:

A2.8.1. Procedures/crew coordination

A2.8.2. Aborts

A2.8.3. Emergencies after decision speed

A2.8.4. Departure routing

A2.8.5. Obstructions

A2.8.6. Planned level off altitude and airspeed

A2.9. En route:

A2.9.1. Overview

A2.9.2. Action/crunch points

A2.9.3. Restricted airspace

A2.9.4. High terrain

A2.9.5. Emergency airfields

A2.9.6. Late takeoff considerations or alternate mission

A2.10. Air Refueling:

A2.10.1. Track/area

A2.10.2. Tanker call sign/aircraft type

A2.10.3. RZ type and altitude/block

A2.10.4. C/R plan/EMCON procedures

A2.10.5. Onload

A2.10.6. End A/R request

A2.10.7. Missed A/R considerations

A2.11. Low Level:

A2.11.1. Pilot/mission commander specific considerations/brief

A2.11.2. Letdown type

A2.11.3. Level off altitude and considerations

A2.11.3.1. Terrain elevation

A2.11.3.2. Radar altimeter lock-on altitude

A2.11.3.3. Roundout/level off altitudes

A2.11.3.4. IFR altitude

A2.11.3.5. Range-specific procedures

A2.11.3.6. Withhold/Hung weapons procedures

A2.12. Communications:

A2.12.1. Command Post (authentication/ launch/recovery)

A2.12.2. VHF/UHF/HF/AFSATCOM/MILSTAR/HAVE QUICK

A2.12.3. Secure voice procedures

A2.12.4. Recall procedures

A2.13. Recovery:

A2.13.1. Hung/withheld weapon procedures

A2.13.2. Fuel reserve

A2.13.3. Divert options

A2.13.4. Approach review

A2.13.4.1. Crew coordination

A2.13.4.2. Low vis landing procedures

A2.13.4.3. Transition to landing

A2.13.4.4. Safety check

A2.13.5. Simulated Emergency Procedures.

A2.13.6. ERCC/Taxiback procedures

A2.13.7. Warm seat swap procedures

A2.14. In-Flight Emergencies:

A2.14.1. Crew coordination

A2.14.1.1. Fly and navigate

A2.14.2. Airmanship

A2.14.2.1. Who flies vs. who accomplishes checklist

A2.14.2.2. Loss of interphone/cockpit communications

A2.14.2.3. Ejection procedures

A2.15. Crew Coordination (General):

A2.15.1. Transfer of aircraft control and AFCS modes

A2.15.2. Leaving/returning to seat/going on or off oxygen

A2.15.3. Altitude calls

A2.16. Specialized Briefings:

A2.16.1. Target Study

A2.16.2. Chase/Formation briefing

A2.16.3. Unusual/special events--flyby, FCF

A2.16.4. Range Considerations

A2.17. Reminders:

A2.17.1. ACC Special Interest Items

A2.17.2. Flight manual changes

A2.17.3. Flight clothing and equipment

Attachment 3

FORMATION BRIEFING GUIDE

NOTE: This minimum briefing guide is provided as an example to stress mission events and objectives rather than reinforce technical order procedures. A standardized briefing format is especially important when flying with other units. Brief only actions required to meet mission and EMCON objectives.

A3.1. ROLL CALL:

A3.1.1. Time Hack

A3.1.2. Mission Changes

A3.1.3. Call Signs/pilots

A3.1.4. Tail Numbers

A3.1.5. Parking Locations

A3.1.6. Mx Status

A3.1.7. Weapons configurations

A3.1.8. Fuel loads

A3.2. WEATHER:

A3.2.1. Takeoff

A3.2.2. En route

A3.2.3. Air refueling

A3.2.4. Low level

A3.2.5. Destination

A3.2.6. Alternates

A3.3. MISSION OVERVIEW:

A3.3.1. Mission Objectives

A3.3.2. TGTs/Times

A3.3.3. Intelligence

A3.3.4. EW/GCI lines

A3.3.5. FLOT

A3.3.6. Route/Tgt Area Defenses

A3.3.7. Passive Detection

A3.3.8. SAR

A3.3.9. Tactical Considerations

A3.4. COMM PLAN:

A3.4.1. EMCON level

A3.4.2. Frequencies

A3.4.3. Change over times/points/procedures

A3.4.4. IFF/SIF

A3.4.5. Code words

A3.4.6. Bullseye points

A3.5. GROUND OPERATIONS:

A3.5.1. Taxi Route/Delays

A3.5.2. Takeoff Data Review

A3.6. TAKEOFF:

A3.6.1. Spacing

A3.6.2. Aborts

A3.6.3. Departure Route

A3.6.4. Joinup/Airspeed/Intermediate Level offs

A3.6.5. Late Takeoff

A3.6.6. Delayed aircraft rejoin procedures

A3.7. LEVEL OFF:

A3.7.1. Altitude Block/Planned Speeds

A3.7.2. Level Off/TF Checks

A3.7.3. Trail/Visual formation procedures

A3.7.4. Position Changes

A3.7.5. High Bomb Runs

A3.7.6. TGTs/TOTs/Alt stacks

A3.8. AIR REFUELING:

A3.8.1. Call Signs/CR Plan/Times/Onloads/Altitudes

A3.8.2. Receiver Assignments/Wingman Responsibilities/Positions

A3.8.3. Overruns & Breakaway

A3.8.4. Night/IMC procedures

A3.8.5. End AR plan

A3.8.6. Lost AR plan

A3.9. FORMATION LOW LEVEL:

A3.9.1. A/A TACAN/Radios

A3.9.2. Penetration/Spacing/Split-up

A3.9.3. Threat Reactions

A3.9.4. Target area tactics

A3.9.5. Weapon fusing

A3.9.6. Release parameters

A3.9.7. With hold criteria

A3.9.8. Safe escape considerations

A3.9.9. Safe separation

A3.9.10. Route aborts/emergency airfields

A3.9.11. Route abort Altitude

A3.9.12. Rejoin

A3.10. RECOVERY/REJOIN:

A3.10.1. Location

A3.10.2. Altitudes/Airspeeds

A3.10.3. A/A TACAN/Radios

A3.10.4. Rejoin Point

A3.10.5. Routing/Penetration/Breakup

A3.11. SPECIAL SUBJECTS:

A3.11.1. Emergencies

A3.11.2. Lost Wingman

A3.11.3. EMCON/Chattermark

A3.11.4. Fallout Plan (Lead breaks etc. for multi-ship deputy flt lead)

A3.11.5. Lead Changes

A3.11.6. Mid Mission Rejoins

A3.11.7. Freq's/Air-to-Air/Speeds

A3.11.8. Bingo Fuels

A3.11.9. Hung Stores

A3.11.10. Alternate Mission/No later than times

A3.11.11. Debriefing

A3.12. QUESTIONS:

Attachment 4

STRANGE FIELD PROCEDURES

A4.1. Mission Planning. During mission planning, crews should review the following information for each base of intended landing:

A4.1.1. **FLIP Enroute Supplement:**

A4.1.1.1. Traffic pattern altitudes/airfield specific differences

A4.1.1.2. Navaids scheduled maintenance period(s)

A4.1.1.3. Facilities/services/fuels available

A4.1.1.4. Load bearing capacity

A4.1.2. **FLIP Planning Documents:**

A4.1.2.1. Special notices

A4.1.2.2. Preferred routings

A4.1.2.3. Terminal Control Areas

A4.1.2.4. ICAO information

A4.1.3. **Instrument Approach Plates:**

A4.1.3.1. Airfield layout/obstacles/runway length and width

A4.1.3.2. Final approach runway alignment

A4.1.3.3. Airfield lighting

A4.1.3.4. Navigation chart (review for local terrain features)

A4.1.4. **Security Requirements:**

A4.1.4.1. Aircraft security requirements

A4.1.4.2. Storage of classified materials

A4.2. Review of Arrival/Approach Procedures. Before departure from each base crews may use the following guide as a means of reviewing the arrival/approach procedures for the next intended landing base:

A4.2.1. **Departure:**

A4.2.1.1. Obstacles

A4.2.1.2. Rate of climb required

A4.2.1.3. Emergency/minimum safe altitudes

A4.2.1.4. SID/routing/navaids/altitude requirements

A4.2.2. **Enroute Descent:**

A4.2.2.1. Start descent point

A4.2.2.2. Rate of descent required

A4.2.2.3. Transition altitude

A4.2.2.4. Terminal fix (IAF, FAF, PAR/ASR, etc.)

A4.2.2.5. Lost communication procedures

A4.2.2.6. Emergency/minimum safe/sector altitudes

A4.2.3. **Published Penetration:**

A4.2.3.1. IAF/holding fix

A4.2.3.2. Initial rate of descent required

A4.2.3.3. Transition altitude

A4.2.3.4. Altitude restrictions

A4.2.3.5. Emergency/minimum safe/sector altitudes

A4.2.3.6. Final approach fix

A4.2.3.7. Lost communication procedures

A4.2.4. **Final Approach--Published or Radar:**

A4.2.4.1. Rate of descent

A4.2.4.2. Timing

A4.2.4.3. Weather minimums/MDA/DH

A4.2.4.3.1. Aircraft/aircrew restrictions

A4.2.4.4. Missed approach procedures

A4.2.4.5. .Lost communication procedures

A4.2.4.6. Transition to visual/runway environment/landing

Attachment 5

IC 2000-1 TO AFI 11-2B-2 VOLUME 3, B-2 OPERATION PROCEDURES

1 JANUARY 2000

SUMMARY OF REVISIONS

This change incorporates interim change (IC) 2000-1. A bar (|) indicates revisions from the previous edition. Modifies Paragraph 2.5 (NOTE) to update mission planning guidance. Adds Paragraph 3.6.10.1. guidance on 30 second MITO spacing. Modifies Paragraph 5.3.4. to include procedures for assessing weapons status via the MMS. Clarifies guidance in Paragraph 6.1.4. with respect to taxiing with nose wheel steering malfunctions.

2.5. Mission Planning Procedures. Accomplish flight planning to insure safe accomplishment of all phases of flight. As a minimum, mission planning includes takeoff procedures, enroute procedures, planned simulated/actual threats, target study/weapons delivery, air refueling, fuel requirements, formation procedures/briefing (if applicable), chart preparation and landing procedures. **NOTE:** Unit-designated target study officers (TSO) or B-2 IPs certified by 509 OSS/OSKW will accomplish target study. Prior to giving target study, TSO's and qualified B-2 IPs must verify (according to local procedures outlined in **Chapter 8**) they have the most current information on the routes and targets to be briefed.

3.6.10.1. Plan to attain 1 minute spacing between brake release for formation members. Takeoff intervals may be varied as necessary depending on aircraft performance, training requirements, weather conditions, or mission requirements. For practice MITOs, aircraft spacing may be reduced to 30 seconds. Practice MITOs are restricted to 2-ship only, 300,000 lbs gross weight, TRT and in the base escape master mode. Practice MITOs will only be accomplished as part of a nuclear training mission. Takeoff aborts will be called by the aborting airplane once the aircraft is fully under control. If lead aborts, wingman should taxi clear to maintain formation integrity unless the mission dictates otherwise. If wingmen abort, they may rejoin enroute if briefed by lead.

5.3.4. If release is verified by the Range Control Officer (RCO) or the aircrew using the B-2 Mission Management System (MMS), aircrew may conduct additional training without restriction provided no weapons remain on the aircraft.

6.1.4. Aircraft will not be taxied with a brake system malfunction, and will not normally be taxied with a nosewheel steering malfunction. If a nosewheel steering malfunction occurs in-flight and cannot be cleared/reset, the OG may allow the aircrew to taxi the aircraft clear of the runway using nosewheel steering override or differential braking. After clearing the runway, the crew will stop until the malfunction can be cleared.